

Reconsideration of the application in view of the following remarks is respectfully requested.

REMARKS

1. Status of claims

Claims 1-28 are pending.

2. Claim rejections under 35 U.S.C. §102

Claims 13-24 are rejected under 35 U.S.C. §102(b) as being anticipated by Wu et al., U.S. Pat. No. 5,276,227 ("Wu"). Claim 13 recites a composition comprising "a polyalphaolefin having a Bromine Index of less than 200 mg Bromine per 100 gram samples of polyalphaolefin." The Examiner points to Wu's teaching of polyalphaolefins of low unsaturation, "as characterized by low bromine number, usually lower than 4" (col. 3, lines 49-51), and the Examiner alleges this teaching discloses bromine numbers of 0-4 g Br per 100 g sample, which encompasses the polyalphaolefins of the present claims, which have Bromine Indices of 200 mg Br per 100 g sample. Applicants respectfully traverse this rejection.

First, *Wu's teaching of bromine numbers "usually lower than 4" is ambiguous.* The most plausible reading of the term is that at least half of the products have bromine numbers less than 4. However, Wu provides no teaching or suggestion of what the lowest bromine number would be. Because of this ambiguity, Wu clearly does not expressly teach polyalphaolefins with a range of bromine numbers wherein the lower bound of the range is 0.2 or less. Further, a lower bound of 0.2 or less for the range is not an inherent property of the teachings of Wu, for reasons that will be discussed in more detail below.

Second, *one of ordinary skill in the art would not conclude Wu had taught polyalphaolefins having bromine numbers of 0.2 or less.* A reference is given full faith only within the context of the state of the art. The state of the art of measuring polyalphaolefin saturation is, as Applicants explained in the paper filed August 27, 2001, given by ASTM standard D 1159, "Standard Test Method for Bromine Numbers of Petroleum Distillates and Commercial Aliphatic Olefins by Electrometric Titration" (current edition published Sept. 1998), and ASTM standard D 2710, "Standard Test Method for Bromine Index of Petroleum Hydrocarbons by Electrometric Titration" (current edition published Aug. 1999).

As stated previously, Bromine Number is the number of grams of bromine that will react with 100 g of sample under certain test conditions (D 1159-98, paragraph 3.1.1), and Bromine Index is the number of milligrams of bromine that will react with 100 g of sample under other test conditions (D 2710-99, paragraph 3.1.1). However, it is plainly stated that converting between Bromine Number and Bromine Index by using a factor of 1000 is not applicable (D 1159-98, paragraph 1.3). The Bromine Number determination calls for titration against a 0.2500 ± 0.002 M potassium bromide/potassium bromate standard solution (D 1159-98, paragraphs 7.4 and 7.4.1.1), whereas the Bromine Index determination calls for titration against 0.05 N potassium bromide/potassium bromate solution (D 2710-99, paragraph 7.3.1). The standards clearly state that, for samples with Bromine Number less than 1.0, a more precise measure of unsaturation is obtained by D 2710, and for samples with Bromine Number less than 0.5, D 2710 "must be used" (D 1159-98, paragraph 1.3). Similarly, D 2710 is only applicable for "materials having bromine indexes below 1000" (D 2710-99, paragraph 1.1).

Given the plain teachings of the ASTM standards, one of ordinary skill in the art would conclude that a purported Bromine Number of less than 0.5 is entirely imprecise and cannot be

used. In other words, 0.5 is the lowest Bromine Number that can be reliably measured according to D 1159-98. Even giving full faith to Wu, one of ordinary skill in the art could only conclude Wu teaches products with Bromine Numbers in a range having a lower bound between 0.5 and 4.

Further, even if, considered strictly for the sake of argument, conversion between Bromine Number and Bromine Index by using a factor of 1000 is permissible, *Wu provides no evidence Wu et al. possessed polyalphaolefins having bromine numbers below 0.5, let alone 0.2.* The Examiner alleges Wu teaches "products of low unsaturation are desirable" (detailed action, p. 4, second and third paragraphs). However, one of ordinary skill in the art would reasonably expect Wu to report the lowest degrees of unsaturation reached in Wu et al.'s work. As a strictly hypothetical example, if Wu et al.'s work produced products with Bromine Number of about 3.0, one of ordinary skill in the art would expect Wu to say "bromine number of usually about 3" or similar language. Wu's failure to say anything other than "usually lower than 4" strongly suggests the reference's authors produced products with bromine numbers only marginally less than 4, and therefore much greater than 0.5, let alone the lower degrees of unsaturation presently claimed. Further, given the expense, time, energy, etc. required for hydrogenation, without an explicit teaching by Wu of the very low degrees of unsaturation presently claimed, one of ordinary skill in the art would conclude that products with Bromine Number marginally less than 4 were considered by Wu to be adequately hydrogenated, and therefore Wu does not teach the very low degrees of unsaturation presently claimed.

For the above reasons, Applicants believe Wu does not anticipate claims 13-24, and therefore this rejection should be withdrawn.

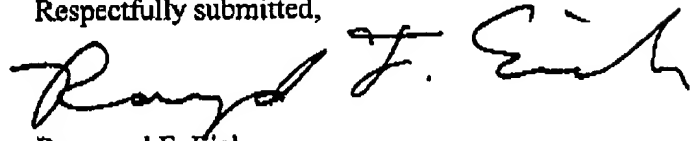
3. Claim rejections under 35 U.S.C. §103

The following rejections for unpatentability under 35 U.S.C. §103(a) have been made: (1) claims 1-8, 10-12, and 27 over Sauer, U.S. Pat. No. 3,113,167 ("Sauer") in view of Wu; (2) claims 1-4, 6-12, 26, and 28 over Cupples et al., U.S. Pat. No. 4,282,392 ("Cupples") in view of Wu; (3) claim 25 over Cupples in view of Wu and Van Dyck Fear, U.S. Pat. No. 2,980,603 ("Fear"); and (4) claim 25 over Sauer in view of Wu and Fear. In each of these four rejections, Wu is relied on by the Examiner for its teaching of polyalphaolefins with bromine numbers "usually less than 4," which the Examiner has interpreted as disclosing a range of 0-4. None of the other references teaches polyalphaolefins with bromine indices of 200 or less, which are presently claimed. Combining two or more references, none of which teach or suggest polyalphaolefins with bromine indices of 200 or less, cannot render claims limited to polyalphaolefins with bromine indices of 200 or less obvious, and therefore this rejection should be withdrawn for all claims reciting such a limitation (claims 1-24 and 27-28). Regarding claims 25-26, these claims recite polyalphaolefins having levels of hydrogenation "in which an RBOT level of at least 2200 minutes is achieved" or "in which a Lube Oil Oxidator level of at least 45 hours is achieved." To the best of Applicants' knowledge, none of the references cited against these claims teaches polyalphaolefins having such an extent of hydrogenation. Therefore, Applicants request all rejections of claims 1-12 and 26-28 under 35 U.S.C. §103(a) be withdrawn.

4. Final remarks

In conclusion, Applicants maintain all pending claims 1-28 are in condition for allowance. The Examiner is invited to contact the undersigned patent agent at (713) 934-4065 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,



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